

Amendments to the Specification:

Please replace the abstract found on page 18 with the following amended abstract:

~~Method and Apparatus for Adaptive Hybrid Termination in a Multi-Carrier Communication System~~

ABSTRACT

An xDSL modem having an adaptive hybrid termination impedance. The modem has a transformer with two cores, one connected to the modem's receiver and the other connected to the modem's transmitter. The two cores share an adjustable termination impedance. The modem determines which impedance setting to use, based on one or more measurements of channel loss, local echo power and received power from the far end transmitter, and the like.

Amendments to the Claims:

Please amend claims 2, 6, 9, and 12 and cancel claims 1, 5, 8, 10, and 11 as shown in the below listing of claims. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claim 1 (canceled).

2. (currently amended) An xDSL modem comprising:

a hybrid circuit for interfacing a twisted pair transmission line to a receiver and also to a transmitter, wherein

the hybrid circuit is provided with an adjustable termination impedance The xDSL modem of claim 1, wherein

the adjustable termination impedance comprises a multiplexer configured to selectively connect at least one transformer of said hybrid circuit to at least one discrete component.

3. (original) The xDSL modem of claim 2, wherein

the adjustable termination impedance comprises a multiplexer configured to selectively connect a pair of transformers of said hybrid circuit to at least two discrete components.

4. (original) The xDSL modem of claim 2, wherein

the multiplexer is connected to a controller configured to provide a signal to cause the multiplexer to selectively connect said at least one discrete component.

Claim 5 (canceled).

6. (currently amended) An xDSL modem comprising:

a hybrid circuit for interfacing a twisted pair transmission line to a receiver and also to a transmitter, wherein

the hybrid circuit is provided with an adjustable termination impedance and

comprises first and second transformers, said first transformer being connected to said receiver and said second transformer being connected to

said transmitter, and wherein said first and second transformers are both connected to the adjustable termination impedance

~~The xDSL modem of claim 5, wherein the adjustable termination impedance comprises a multiplexer configured to selectively and simultaneously connect both of said first and second transformers to at least one discrete component.~~

7. (original) The xDSL modem of claim 6, wherein
the multiplexer is connected to a controller configured to provide a signal to cause the multiplexer to selectively and simultaneously connect both of said first and second transformers to said at least one discrete component.

Claim 8 (canceled).

9. (currently amended) An xDSL modem comprising:

a hybrid circuit for interfacing a twisted pair transmission line to a receiver and also to a transmitter, wherein

the hybrid circuit is provided with an adjustable termination impedance comprising at least one linear device configured to change one of a resistance, a capacitance, or an inductance, in response to a variable voltage, and

~~The xDSL modem of claim 8, wherein said at least one linear device comprises one of a field effect transistor, a varactor, an and a gyrator.~~

Claims 10-11 (canceled).

12. (currently amended) A method of operating an xDSL modem comprising:

measuring at least one property of a communication channel connected to said modem;

changing a hybrid termination impedance based on a measurement of said at least one property;

determining at least one of a background noise profile of the channel, a channel loss characteristic and local echo power; and

changing a hybrid termination impedance based on a result of said determining step;

~~The method of claim 11, wherein the hybrid termination impedance is changed to one from a finite number of discrete hybrid termination impedance values.~~

13. (original) The method of claim 12, wherein the hybrid termination impedance is changed to a hybrid termination impedance value within a predetermined continuous range.

Amendments to the Drawings:

The attached drawing sheets of Figs. 1-8 include changes to Fig. 6 on replacement sheet 6. This sheet replaces original sheet 6. The previously omitted reference character “164” on original sheet 6 has been added to replacement sheet 6.

REMARKS

In response to the Office Action mailed May 7, 2003, applicants submit the above amendments and the following remarks.

In paragraphs 1-2 of the Office Action, the Examiner objects to Fig. 6 because it does not include the reference character “164” described as an analog multiplexer in the specification. In response, applicants submit a complete set of drawing sheets including a revised Fig. 6.

In paragraph 3 of the Office Action, the Examiner objects to the abstract page because the title “Method and Apparatus for Adaptive Hybrid Termination in a Multi-Carrier Communication System” appears above it. In response, applicants have amended the abstract page to remove the application title.

In paragraphs 4-10, the Examiner rejects claims 1, 8, 10, and 11 under 35 U.S.C. §102 as anticipated by Moschytz et al., U.S. Patent No. 6,208,732 (“Moschytz”). The Examiner also rejects claim 5 under 35 U.S.C. §103(a) as obvious over Moschytz in view of Hernandez-Marti, U.S. Patent No. 6,509,755. In paragraph 11, the Examiner notes that claims 2-4, 6, 7, 9, 12, and 13 would be allowable if rewritten in independent form or depend from such rewritten claim.

In response, applicants have rewritten claims 2, 6, 9, and 12 in independent form, incorporating all of the limitations of the claims from which they depend. These amendments do not represent acquiescence in the Examiner’s rejections and are made to expedite prosecution of the present application. Applicants reserve the right to resubmit some or all of the original claims in, for example, a continuation application.

It is also respectfully submitted that the above redrafting of claims 2, 6, 9, and 12 into independent form are not narrowing amendments within the meaning of *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 122 S. Ct. 1831 (2002) (*see also Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 234 F.3d 558 (Fed. Cir. 2000) (*en banc*)), since they do not affect the claims’ scope.

The original due date for this Response was August 7, 2003. Accordingly, a Petition for Extension of Time (one month) is filed herewith which renders this Response timely. Please charge any required fees in connection with this Petition, as well as any

other necessary fees due in connection with this Response, to Pennie & Edmonds LLP
Deposit Account 16-1150.

In light of the above, it is respectfully submitted that the present application
is in condition for allowance. Favorable disposition is respectfully requested.

Date September 19, 2003

Respectfully submitted,

Rory J. Redding

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(Reg. No.)

PENNIE & EDMONDS LLP

1155 Avenue of the Americas

New York, New York 10036-2711

(212) 790-9090

Enclosures